

## APPENDIX E: READING A MATERIAL SAFETY DATA SHEET

Michigan's Employee Right-To-Know Law requires that information about hazardous substances found in the work place be made available to exposed employees. Accordingly, employers must have a Material Safety Data Sheet (MSDS) for every hazardous chemical in the work place and make these sheets available to their employees. A proper MSDS lists the content of the product and if any of the ingredients are subject to specific regulations. It also identifies special precautions that should be taken when storing, using, and disposing of the product. An MSDS can be a valuable reference tool; however, it should not be considered a complete source of information about the product since all information may not be included. For instance, an MSDS is not reliable if used to determine the presence of hazardous waste because it does not include information about the contaminants that might be found in the used product.

Each MSDS must include the same basic information; however, the format can vary from one manufacturer to another. You can obtain an MSDS from your supplier or you may order them from the manufacturer's technical or customer service departments. Product labels should include the manufacturer's name and address and/or telephone number so you can contact them to request an MSDS or additional information about the product. Many MSDSs can also be accessed on the Internet. The MSDS Resource Library ([www.reade.com/MSDS\\_Links.html](http://www.reade.com/MSDS_Links.html)) provides several links to MSDS Internet sites. In addition, the Vermont Safety Information Resources Inc. Internet site, located at [www.siri.org](http://www.siri.org), can help you find MSDSs directly using the CAS number, company, or product name.

Every MSDS must include the following information:

**Product Identification** - This includes the trade name, chemical name, and any common name, along with the manufacturer's name, address, and emergency telephone number. If a Chemical Abstract Service (CAS) number is given, you can usually find out more information about the substance in a chemical abstract or on the Internet.

**Hazardous Ingredients** - This section identifies the ingredients contained in the product, usually broken down into percentages. The ingredients must be listed if they are more than 1 percent of the total product, or more than 0.1 percent if carcinogenic, unless it is considered to be proprietary or a trade secret. This section also includes the Occupational Safety and Health Administration (OSHA) permissible exposure limits (PEL), short-term exposure limits (STEL), and threshold limit values (TLVs). PEL and TLV numbers indicate the airborne contaminant levels that most healthy, adult workers may be repeatedly exposed to for 8 hours a day, 40 hours a week without adverse effect. The STEL number is the maximum concentration of product that a worker may be exposed to for a specified time, usually 15 minutes. These limits, however, do not provide adequate protection for everyone. They do not consider exposure rates for children, pregnant women, hypersensitive individuals, or other high-risk groups. They also do not apply to shifts longer than 8 hours or to people who live and work in the same environment.

**Physical and Chemical Data** - This section identifies whether the product is a liquid, solid, or gas at room temperature. It also includes the vapor pressure (VP), which indicates how easily the product evaporates, and the vapor density (VD), which indicates where vapors may accumulate. Products with VDs greater than one tend to accumulate in low areas. This section also lists the product's boiling point, melting point, density, and solubility in water.

**Fire and Explosion Hazard Data** - In this section, hazards are referenced by the flashpoint (FP), which is the lowest temperature at which vapors will ignite in air when exposed to flame. Materials with a flashpoint below 100° Fahrenheit are dangerous because a spark or static electricity can cause a fire or explosion. This section should also identify what measures should be taken to put out a fire if one occurs and if any special fire fighting procedures or equipment are needed.

**Reactivity Data** - This section discusses the product's stability and any special precautions to take if mixing. It also indicates which substances are incompatible with the product and should not come in contact with it. This information is useful when choosing safe storage conditions.

**Health Hazard Data** - This information tells you how the product's chemicals normally enter the body, the acute effects of exposure, signs and symptoms of exposure, as well as emergency and first aid procedures. It may indicate if the product is listed as a carcinogen on the National Toxicology Program Annual Report on Carcinogens or is a potential carcinogen according to the International Agency for Research on Cancer or OSHA.

**Precautions for Safe Handling and Use** - This section identifies what procedures are needed for cleaning up spills and leaks, how to clean or dispose of contaminated clothing, and how to dispose of the unwanted or unused portions of the product. In general, disposal information is often vague since local, state, and federal regulations vary.

**Control Measures** - This section describes what personal protective equipment, work practices, and ventilation procedures to utilize when handling the product.

If you need information that is not given on the MSDS, contact the manufacturer for more details. You may also find product information in a variety of other resources like chemical dictionaries, toxicology and industrial hygiene publications, and documents available from the U.S. Government Printing Office.